REMARKS

No amendments have been made in the present response. Claims 1-4, 8-10, 12-20, and 25-32 remain pending in the captioned case. Further examination and reconsideration of the presently claimed application are respectfully requested.

Section 103 Rejections

Claims 1-4, 8-10, and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application No. 2003/0235983 to Li et al. (hereinafter referred to as "Li") in view of U.S. Patent No. 5,741,362 to Kobayashi (hereinafter "Kobayashi"). Claims 13-20, 25 and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Li and Kobayashi in view of U.S. Patent No. 5,636,762 to Juhola et al. (hereinafter "Juhola"). Claims 27-31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Li and Kobayashi in view of U.S. Patent No. 5,830,805 to Shacham-Diamand et al. (hereinafter "Shacham-Diamand"). Claim 32 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Li, Kobayashi, Shacham-Diamand and Juhola.

To establish a case of *prima facie* obviousness of a claimed invention, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. Second, there must be a reasonable expectation of success. As stated in MPEP 2143.01, the fact that references can be hypothetically combined or modified is not sufficient to establish a *prima facie* case of obviousness. *See In re Mills*, 916 F.2d. 680 (Fed. Cir. 1990). Finally, the prior art references must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d. 981 (CCPA 1974); MPEP 2143.03 (emphasis added). Specifically, "all words in a claim must be considered when judging the patentability of that claim against the prior art." *In re Wilson* 424 F.2d. 1382 (CCPA 1970). Using these standards, Applicants contend that the cited art fails to provide teaching or suggestion for all features of the currently pending claims, and furthermore, cannot be combined or modified to do so. Several distinctive features of the present invention are set forth in more detail below.

Kobayashi cannot be combined with Li to provide teaching or suggestion for a system comprising: (i) a chamber, (ii) a plurality of reservoirs coupled to the chamber, (iii) a first set of devices adapted to maintain a process fluid supplied to the chamber within a first temperature range, (iv) a second set of devices adapted to maintain the process fluid residing in a first set of the plurality of reservoirs within a second temperature range lower than the first temperature range, and (v) a third set of devices adapted to maintain the process fluid residing in a second set of the plurality of reservoirs within a third temperature range lower than the first and second temperature ranges, wherein the minimum temperature of the third temperature range is higher than an ambient temperature of an environment surrounding the second set of the plurality of reservoirs. Independent claim 1 recites in part:

> A system, comprising: a chamber configured to process one or more wafers for the fabrication of microelectronic devices; a plurality of reservoirs serially coupled to the chamber via a plurality of intervening pipes … a first set of one or more devices adapted to maintain the process fluid supplied to the chamber within a first temperature range; a second set of one or more devices adapted to maintain the process fluid residing in a first set of the plurality of reservoirs within a second temperature range lower than the first temperature range; and a third set of one or more devices adapted to maintain the process fluid residing in a second set of the plurality of reservoirs within a third temperature range lower than the first and second temperature ranges, wherein the minimum temperature of the third temperature range is higher than an ambient temperature of an environment surrounding the second set of the plurality of reservoirs.

As described in more detail below, Li and Kobayashi each fail to teach or suggest, and cannot be combined or modified to teach or suggest, all limitations of present claim 1. Therefore, the § 103 rejection of independent claim 1 and all claims dependent therefrom is respectfully traversed.

As shown in Figs. 1 and 3, Li discloses an electroless plating system including a processing chamber (e.g., plating chamber 120, Fig. 1) and at least one reservoir (e.g., pre-heat tank 110 and holding tank 100, as shown in Fig. 1, or holding tank 100, as shown in Fig. 3), which is serially coupled to the processing chamber via at least one intervening pipe (e.g., lines 102 and 105 as shown in Fig. 1, or line 107 as shown in Fig. 3) (Li -- ¶¶ 39-43; Figs. 1 and 3). Li states that the process fluid supplied to the processing chamber may be heated to a deposition temperature range (between,

e.g., about 60°C and about 90°C) by disposing a heating plate (208, Fig. 2A) within the processing chamber (Li -- ¶¶ 12, 31, 37, and 53-57; Fig. 2A). Li also states that the process fluid may be preheated, in some embodiments of the invention, to a temperature range between about 5°C and about 10°C below the minimum deposition temperature before it is supplied to the processing chamber (Li -- ¶¶ 38 and 41).

In the embodiment shown in Fig. 1, Li suggests that "a portion of the [process fluid] can be removed from tank 100 via line 105 to a smaller pre-heat tank 110" where it can be heated by any suitable method (e.g., a heating plate or heated tank base disposed within the pre-heat tank) (Li -- ¶ 42; Fig. 1). In the embodiment shown in Fig. 3, Li suggests "rather than pre-heating the [process fluid] in pre-heating tank 110, the [process fluid] can be pre-heated in a heated line 107" which carries the process fluid "from holding tank 100 to [processing] chamber 120" (Li -- ¶ 43; Fig. 3). Therefore, Li provides two distinct systems and methods for pre-heating the process fluid before it is supplied to the processing chamber.

In the embodiment of Fig. 3, the process fluid stored in holding tank 100 is pre-heated within heated line 107 before it is supplied to, and further heated within, processing chamber 120. The system shown in Fig. 3 of Li, therefore, includes a processing chamber (e.g., plating chamber 120) and a single reservoir (e.g., holding tank 100) serially coupled to the chamber via an intervening pipe (heated pipe 107). Although Li teaches that a "first set of devices" (e.g., heating plate 208) may be disposed within the chamber for heating the process fluid supplied to the chamber within a first temperature range (e.g., the deposition temperature range), Li fails to provide teaching or suggestion for a "plurality of reservoirs" in the embodiment of Fig. 3, and thus, cannot provide teaching or suggestion for a "second set of devices" and a "third set of devices," as presently claimed.

Fig. 1 is the only embodiment in which Li includes a "plurality of reservoirs" (e.g., pre-heat tank 110 and holding tank 100). Although Li suggests that heating means (e.g., heating plates) may be disposed within processing chamber 120 and preheat tank 110 for progressively heating the process fluid to higher and higher temperature ranges, no such heating or temperature regulating means are provided within holding tank 100. Therefore, Li simply fails to provide teaching or suggestion for the "third set of devices," as presently claimed.

In addition to explicit lack of teaching or suggestion, Li lacks the necessary motivation that would enable one skilled in the art to modify the teachings of Li to include the "third set of devices," as presently claimed. For example, Li provides no motivation to maintain the process fluid residing in holding tank 100 within a third temperature range, which is lower than the first and second temperature ranges, but higher than an ambient temperature of an environment surrounding the holding tank. In fact, Li explicitly states that the process fluid "in the holding tank 100 can generally be at ambient temperature or can even be cooled somewhat so as to prolong the life of the [process fluid]" (Li -- ¶ 39). Since Li specifically mentions that the process fluid within the holding tank can be at ambient temperature or lower, Li provides absolutely no motivation that would enable one skilled in the art to modify the teachings of Li to include a third set of devices for maintaining the process fluid within the holding tank at a temperature, which is higher than an ambient temperature of an environment surrounding the holding tank. As a consequence, Li fails to provide motivation for the presently claimed "third set of devices" and, furthermore, cannot be modified to do so.

On page 3 of the Office Action, the Examiner admits that Li "does not disclose the use of multiple devices for controlling the temperature." However, the Examiner suggests that Kobayashi "discloses using there [sic] temperature adjusters at various locations of a supply chain for a [sic] electroless plating bath system ... to ensure that no deposition is produced in the supply chain." Therefore, the Examiner concludes that it would have been obvious to use the temperature adjusters of Kobayashi within the electroless plating system of Li "to ensure that deposition only takes place in the chamber" (Office Action, page 3). As described in more detail below, Li and Kobayashi: (i) lack the necessary motivation that would enable one skilled in the art to combine the teachings of Li and Kobayashi, and (ii) fail to provide teaching or suggestion for all limitations of present claim 1 even if improperly combined.

Kobayashi discloses a wafer surface treating apparatus (Fig. 2) in which processing fluids (chemicals 3) from an overflow tank (outer tank 2) of the processing chamber (treating tank 1) are filtered (via filter unit 6) and returned to the processing chamber (Kobayashi -- col. 3, lines 18-30; Fig. 2). Kobayashi discloses that the wafer surface treating apparatus may also include "a first temperature regulating mechanism 10 for regulating the temperature of the chemical 3 in the treating tank 1, a second temperature regulating mechanism 20 for regulating the temperature of the

chemical 3 in the filter unit 6, and a third temperature regulating mechanism 30 for regulating the temperature of the chemical 3 flowing in the piping 7 between the filter unit 6 and the treating tank 1" (Kobayashi -- col. 3, lines 30-44). The Examiner suggests that the temperature regulating mechanisms (10, 20 and 30) of Kobayashi can be combined with the electroless plating system of Li to provide teaching or suggestion for the presently claimed first, second and third sets of devices. The Applicant disagrees, for at least the reasons set forth below.

First of all, the intended purpose of Kobayashi is to: (i) avoid deposition of the chemical in the filter unit, and (ii) reduce temperature variations in the treating tank. To avoid depositing the chemical (3) in the filter unit (6), Kobayashi couples a second temperature regulating mechanism (20) to the piping (7) and filter unit (6), as illustrated in Fig. 2. However, the second temperature regulating mechanism (20) is specifically adapted to <u>decrease</u> the temperature of the chemical flowing through the filter unit (6), compared to the temperature of the chemical residing in the treating tank (1), to avoid deposition in the filter unit (Kobayashi -- col. 2, lines 8-25 and 33-60; col. 3, lines 54-62; col. 4, lines 52-64; col. 4, line 67 – col. 5, line 6; col. 5, lines 25-58).

The third temperature regulating mechanism (30) is coupled to the piping (7) arranged between the filter unit (6) and the treating tank (1) to reduce temperature variations when the filtered chemical is returned to the treating tank. In order to reduce temperature variations, the third temperature regulating mechanism (30) is adapted to <u>increase</u> the temperature of the chemical flowing between filter unit 6 and treating tank 1, so that it "smoothly reaches the temperature of the treating tank" (Kobayashi -- col. 2, lines 26-32; col. 2, line 61 – column 3, line 4; col. 3, line 63 – column 4, line 4; col. 4, lines 27-39 and 61-67; col. 5, lines 15-23 and 42-67).

Therefore, Kobayashi utilizes a first temperature regulating mechanism (10) for maintaining the process fluid (3) within the treating tank (1) within a first temperature range (e.g., about 35°C and about 40°C in Example 1), a second temperature regulating mechanism (20) for maintaining the process fluid (3) within the filter unit (6) within a second temperature range (e.g., about 20°C and about 25°C in Example 1), and a third temperature regulating mechanism (30) for maintaining the process fluid within the pipe (7) between the filter unit and the treating tank within a third temperature range (e.g., about 30°C and about 35°C in Example 1). Although Kobayashi teaches

that the second temperature range (within the filter unit) is preferably lower than the first temperature range (within the treating tank), Kobayashi specifically teaches that the third temperature range is higher than the second temperature range. In other words, the temperature regulating mechanisms of Kobayashi are specifically designed to decrease the temperature of the chemicals within the filter unit (to avoid deposition in the filter unit) before the temperature of the chemicals is subsequently increased and re-supplied to the treating tank (to reduce temperature variations in the treating tank).

Li and Kobayashi provide no motivation that would enable one skilled in the art to combine their respective teachings. As noted above, Kobayashi provides a temperature control process, which avoids depositing chemicals in the filter unit (6) by using a temperature regulating mechanism (20) to decrease the temperature of the chemical, and reduces temperature variations in the treating tank (1) by using another temperature regulating mechanism (30) to subsequently increase the temperature of the chemical. On the other hand, the temperature control process of Li gradually heats the process fluids to higher and higher temperature ranges to increase the deposition rate of the electroless plating system, extend the lifetime of the process fluids and decrease the energy requirements of the system. Although each reference discloses a temperature control process, the processes disclosed by Li and Kobayashi are significantly different (i.e., progressive heating vs. cooling followed by heating). Therefore, one skilled in the art would not be motivated to use the temperature control process of Kobayashi within the system of Li, as proposed by the Examiner.

If the teachings of Kobayashi were somehow combined with Li (without sufficient motivation to do so), the resultant combination would render the electroless plating system of Li unsatisfactory for its intended purpose. For example, Li provides a system in which process fluids are gradually heated to higher and higher temperature ranges to increase the deposition rate of the electroless plating system, extend the lifetime of the process fluids and decrease the energy requirements of the system. At best, the sequential cooling and heating process disclosed by Kobayashi would be counterproductive in the electroless plating system of Li. However, it is more likely that the sequential cooling and heating process disclosed by Kobayashi would prohibit Li from obtaining the advantages described above, therefore, rendering the modified invention of Li unsatisfactory for its intended purpose. If the proposed modification would render the prior art

invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

For at least the reasons set forth above, Li and Kobayashi fail to provide teaching or suggestion for all limitations of present claim 1. In addition, Kobayashi cannot be combined with Li to overcome the deficiencies therein.

Li, Kobayashi and Juhola cannot be combined to provide teaching or suggestion for a system comprising: (i) a chamber, (ii) a plurality of tanks, and (iii) a plurality of volume sensors positioned within the plurality of tanks, such that the chamber and the plurality of tanks are characterized into at least three different zones based upon adaptations of the volume sensors to maintain different volumes of a process fluid in the respective zones. Independent claim 13 recites in part:

> A system, comprising: a chamber configured to process one or more wafers for the fabrication of microelectronic devices; a plurality of tanks serially coupled to the chamber and adapted to store a process fluid used to treat the wafers … and a plurality of volume sensors positioned within the plurality of tanks such that the chamber and the plurality of tanks are further characterized into the at least three different zones based upon adaptations of the volume sensors to maintain different volumes of the process fluid in the respective zones.

As described in more detail below, Li, Kobayashi and Juhola each fail to teach or suggest, and cannot be combined or modified to teach or suggest, all limitations of present claim 13. As a consequence, the § 103 rejection of independent claim 13 and all claims dependent therefrom is respectfully traversed.

As noted above in the previous argument, Li discloses an electroless plating system including a processing chamber (plating chamber 120) and a plurality of tanks (pre-heat tank 110 and holding tank 100) in the embodiment of Fig. 1. However, Li fails to provide teaching, suggestion or motivation for a "plurality of volume sensors," as presently claimed. Teaching,

suggestion or motivation for the presently claimed "plurality of volume sensors" is also lacking with Kobayashi.

The Examiner appears to agree that teaching or suggestion for the claimed "plurality of volume sensors" cannot be found within Li. On page 6 of the Office Action, the Examiner admits that "Li clearly does not disclose a plurality of volume sensors." However, the Examiner suggests that "Juhola discloses that it is known to use volume (or level) sensor[s] in the tanks (items 98-101) in order to maintain proper volumes of the process fluid" (Office Action, page 6). Therefore, the Examiner concludes that it would have been obvious to combine the volume level sensors of Juhola with the electroless plating system of Li "to allow for appropriate volumes in the tanks." The Applicant disagrees with the proposed combination, for at least the reasons set forth below.

The level sensors disclosed by Juhola are <u>not</u> equivalent to the presently claimed "plurality of volume sensors." As noted above, claim 13 requires that a plurality of volume sensors be positioned within a plurality of tanks, such that the chamber and the plurality of tanks are characterized into at least three different zones based upon adaptations of the volume sensors to maintain different volumes of the process fluid in the respective zones.

In column 4, Juhola teaches that a plurality of sensors (98-101) may be externally mounted to a sidewall of reservoir 40 to monitor the level of the process fluid contained therein. For example, and as shown in Fig. 2, "[h]igh and low liquid level sensors 98 and 99 are positioned on the sidewall 84… [to] provide signals indicative of whether the liquid level within the reservoir exceeds a full level or is less than a low level" (Juhola -- col. 4, lines 11-14). Juhola suggests that sensors 100 and 101 may be included to "enhance safety and prevent contamination by ensuring that the reservoir does not become either overfilled or completely empty." For example, "if the high liquid-level sensor 98 were to become inoperative the HI-HI sensor 100 would provide a signal in the event that the liquid within the reservoir 40 were to rise to the level thereof. In this way filling of the reservoir 40 would be suspended… to prevent liquid from entering a gas withdrawal conduit 102" (Juhola -- col. 4, lines 19-27). On the other hand, "the LO-LO sensor 101 is intended to signal when the reservoir 40 has become nearly empty in the case of failure of the low liquid-level sensor 99. In this

way the LO-LO sensor 101 serves to prevent air or gas from being introduced into the pump feed line 92" (Juhola -- col. 4, lines 27-32).

The teachings of Juhola differ from the claimed limitations in several ways. For example, Juhola explicitly teaches that the level sensors (98-101) are externally mounted to a sidewall (84) of a single reservoir (40). This is non-analogous to the claimed plurality of volume sensors, which are positioned within a plurality of tanks/reservoirs. Because Juhola fails to provide teaching or suggestion for a plurality of reservoirs or a plurality of level sensors (98-101) positioned as claimed, the level sensors disclosed by Juhola cannot be used to characterize a chamber and a plurality of tanks into at least three different zones, based upon adaptations of the level sensors, to maintain different volumes of the process fluid in the respective zones. In other words, the level sensors disclosed by Juhola do not read upon, and cannot be considered equivalent to, the presently claimed "plurality of volume sensors."

Juhola cannot be combined with Li and Kobayashi to overcome the deficiencies therein. As noted above, Li and Kobayashi fail to provide teaching, suggestion or motivation for one volume sensor, much less a "plurality of volume sensors," as presently claimed. The Examiner suggests that the level sensors of Juhola can be incorporated within the electroless plating system of Li. This is an incorrect assumption.

First of all, Li lacks the necessary motivation that would enable one skilled in the art to modify the teachings of Li to include a plurality of volume sensors, as claimed. For example, Li fails to provide teaching, suggestion or desirability for monitoring a volume of the processing fluids within processing chamber 120, pre-heat tank 110 and holding tank 100. Similarly, Juhola lacks the necessary motivation that would enable one skilled in the art to divide the plurality of level sensors (98-101) disclosed by Juhola amongst a plurality of reservoirs, such as the processing chamber 120, pre-heat tank 110 and holding tank 100 included within the system of Li. As noted above, the level sensors disclosed by Juhola are used to provide signals indicating whether or not the liquid level within a single reservoir exceeds a high level (sensor 98) or a high-high level (sensor 100), or alternatively, falls below a low level (sensor 99) or a low-low level (sensor 101). Dividing the plurality of level sensors among a plurality of reservoirs would prevent Juhola from determining if

the liquid level within the reservoir exceeds the high levels or falls below the low levels described above. In other words, dividing the plurality of level sensors (e.g., sensors 98-101 of Juhola) amongst a plurality of reservoirs (e.g., reservoirs 120, 110 and 100 of Li) would render the invention of Juhola unsatisfactory for its intended purpose.

To establish a case of *prima facie* obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (C.C.P.A 1974), MPEP 2143.03. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed.Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), MPEP 2143.01. If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

For at least the reasons set forth above, Li, Kobayashi and Juhola each fail to provide teaching or suggestion for all limitations of present claim 13. In addition, the teachings of the cited art lack the necessary motivation that would enable one skilled in the art to combine their respective teachings.

Li, Kobayashi and Shacham-Diamand cannot be combined to provide teaching or suggestion for a system having an intermediate tank interposed between a chamber and a storage tank and further having a (third) set of pipes configured to transport a process fluid from the chamber directly to the intermediate tank. Independent claim 27 recites in part:

> A system, comprising: a chamber configured to process one or more wafers for the fabrication of microelectronic devices … a storage tank configured to hold the process fluid; an intermediate tank interposed between the chamber and the storage tank … and a third set of pipes configured to transport the process fluid from the chamber directly to the intermediate tank.

As described in more detail below, Li, Kobayashi and Shacham-Diamand each fail to teach or suggest, and cannot be combined or modified to teach or suggest, all limitations of present claim 27. As a consequence, the § 103 rejection of independent claim 27 and all claims dependent therefrom is respectfully traversed.

As noted above in the previous argument, Li discloses an electroless plating system including a processing chamber (plating chamber 120), a storage tank (holding tank 100) configured to hold the process fluid, and an intermediate tank (pre-heat tank 110) interposed between the chamber and the storage tank (See, e.g., Fig. 1 of Li and corresponding text). However, Li fails to provide teaching, suggestion or motivation for "a third set of pipes configured to transport the process fluid from the chamber directly to the intermediate tank," as recited in present claim 27. Teaching, suggestion or motivation for the presently claimed "third set of pipes" is also lacking with Kobayashi.

The Examiner appears to agree that teaching or suggestion for the claimed "third set of pipes" cannot be found within Li. On page 10 of the Office Action, the Examiner admits that "Li does not disclose pipes configured to transport the process fluid from the chamber directly to the intermediate tank." However, the Examiner suggests that "Shacham-Diamond [sic] discloses a pipe (pipe 124) equivalent to the third pipe, which [is] configured to transport process fluid directly from the process chamber to the intermediate or holding chamber (item 148)" (Office Action, page 10). Therefore, the Examiner concludes that it would have been obvious to combine the pipe 124 of Shacham-Diamand with the electroless plating system of Li "to permit recirculation of the processing fluid." The Applicant disagrees with the proposed combination, for at least the reasons set forth below.

As shown in Fig. 3, Shacham-Diamand discloses an electroless deposition apparatus (9) including a processing chamber (112) used for processing a wafer and a holding tank (148) used for temporarily storing the processing fluid, which is to be recirculated back to the processing chamber. Shacham-Diamand teaches that the "processing fluid enters process chamber 112 through an inlet 121. Inlet 121 connects to a spray bar 114, which disperses the fluid onto the rotating semiconductor

wafer 120 in a uniform flow. The fluid then exits process chamber 112 through an outlet 124" (Shacham-Diamand -- col. 6, lines 12-27; Fig. 3).

The Examiner suggests that outlet 124 of Shacham-Diamand is somehow equivalent to the presently claimed "third set of pipes." <u>The Applicants strongly disagree</u>. As noted above, claim 27 requires that the third set of pipes be configured to transport the process fluid from the chamber directly to an <u>intermediate tank</u>, which is interposed between the chamber and a storage tank configured to hold the process fluid. Other than processing chamber 112, the holding tank (148) shown in Fig. 3 of Shacham-Diamand is the only tank configured to hold the processing fluid. If holding tank 148 can be interpreted to read upon <u>any</u> of the limitations recited in claim 27, it would most accurately read upon the presently claimed "storage tank." In other words, Shacham-Diamand <u>fails</u> to include an "intermediate tank" interposed, e.g., between processing chamber 112 and holding tank 148. Therefore, although outlet 124 may transport process fluid from processing chamber 112 (i.e., the alleged "chamber") to holding tank 148 (i.e., the alleged "storage tank"), <u>outlet 124 cannot be considered equivalent to the presently claimed "third set of pipes,"</u> because outlet 124 is <u>not</u> configured for transporting the process fluid from the processing chamber directly to an <u>intermediate tank</u> (which is clearly absent in the apparatus disclosed by Shacham-Diamand).

If the proposed combination were made, outlet 124 of Shacham-Diamand would (at best) enable process fluid to be transported from processing chamber 120 to holding tank 100 of Li. However, such recirculation of processing fluid is already provided by line 115 which, as shown in Fig. 1 of Li, transports processing fluid from processing chamber 120 to holding tank 100. Since neither Li nor Shacham-Diamand provide teaching, suggestion or motivation for recirculating the processing fluid from a processing chamber (e.g., chamber 120 of Li or chamber 112 of Shacham-Diamand) <u>to an intermediate tank</u> (e.g., pre-heat tank 110 of Li; no intermediate tank is disclosed by Shacham-Diamand), the teachings of the cited art cannot be combined or modified to read upon the presently claimed "third set of pipes."

For at least the reasons set forth above, Li and Kobayashi fail to provide teaching or suggestion for all limitations recited in present claim 27. In addition, the teachings of Shacham-Daimand cannot be combined with those of Li and Kobayashi to overcome the deficiencies therein.

Applicants have shown that the cited references each fail to provide teaching or suggestion for all limitations of present independent claims 1, 13, and 27. Accordingly, Applicants believe claims 1, 13, and 27, as well as all claims dependent therefrom, are patentably distinct over the cited references. Therefore, Applicants respectfully request removal of this rejection in its entirety.

CONCLUSION

The present amendment and response is believed to be a complete response to the issues raised in the Office Action mailed October 19, 2006. In view of the remarks herein, Applicants assert that pending claims 1-4, 8-10, 12-20, and 25-32 are in condition for allowance. If the Examiner has any questions, comments or suggestions, the undersigned attorney earnestly requests a telephone conference.

No fees are required for filing this amendment; however, the Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment, to Daffer McDaniel, LLP Deposit Account No. 50-3268/5866-00400.

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